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APPLICATION NO. 09/019,087	FILING DATE 02/05/99	FIRST NAMED INVENTOR ENOMOTO	ATTORNEY DOCKET NO. TII-24816
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EXAMINER PEREZ RAMOS, V

ART UNIT 1765	PAPER NUMBER 3
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DATE MAILED: 05/12/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No. 09/019087	Applicant(s) Enomoto et al.	
Examiner Vanessa Pérez-Ramó	Group Art Unit 1765	

—The MAILING DATE of this communication appears on the cover sheet beneath the correspondence address—

Period for Response

A SHORTENED STATUTORY PERIOD FOR RESPONSE IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a response be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for response specified above is less than thirty (30) days, a response within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for response is specified above, such period shall, by default, expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to respond within the set or extended period for response will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).

Status

- ☒ Responsive to communication(s) filed on 2-5-98
- ☐ This action is FINAL.
- ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- ☒ Claim(s) 1-11 is/are pending in the application.
- Of the above claim(s) _____ is/are withdrawn from consideration.
- ☐ Claim(s) _____ is/are allowed.
- ☒ Claim(s) 1-11 is/are rejected.
- ☐ Claim(s) _____ is/are objected to.
- ☐ Claim(s) _____ are subject to restriction or election requirement.

Application Papers

- ☒ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.
- ☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.
- ☐ The drawing(s) filed on _____ is/are objected to by the Examiner.
- ☐ The specification is objected to by the Examiner.
- ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119 (a)-(d)

- ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).
- ☐ All ☐ Some* ☒ None of the CERTIFIED copies of the priority documents have been received.
- ☐ received in Application No. (Series Code/Serial Number) _____.
- ☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).
- *Certified copies not received: _____.

Attachment(s)

- ☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____
- ☒ Notice of References Cited, PTO-892
- ☒ Notice of Draftsperson's Patent Drawing Review, PTO-948
- ☐ Interview Summary, PTO-413
- ☐ Notice of Informal Patent Application, PTO-152
- ☐ Other _____

Office Action Summary

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DETAILED ACTION

Specification

1. The abstract of the disclosure does not commence on a separate sheet in accordance with 37 CFR 1.52(b)(1). A new abstract of the disclosure is required and must be presented on a separate sheet, apart from any other text.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Claims 1-3 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The statement "removing the second mask film such that it is left on the side walls of the second mask film is formed on the side walls of the trenches" in Claim 1, and similar statements in Claims 2 and 3 are vague and indefinite by using improper grammar.

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Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claims 1-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tsuji (U.S. 5,514,625).

In regard to claims 1-3, Tsuji teaches a method of manufacturing a semiconductor device comprising: forming an insulating film over a substrate (col. 5, lines 7-10), forming a first mask on said insulating film (col. 5, line 24) and forming a resist film on the first mask film (col. 5, line 18). This resist film serves as a mask during the etching process (col. 5, lines 32-35) to form an opening (col. 5, lines 29-31), which is followed by the formation of trenches on said insulating film (col. 5, lines 26-28). Furthermore, Tsuji teaches the formation of a second mask film (col. 5, line 46) and its use as an etching mask during the formation of connecting holes (col. 5, lines 44-50). Tsuji also teaches the formation of a wiring layer by burying an electroconductive material in the trenches (col. 7, lines 19-23).

Unlike the claimed invention, Tsuji does not disclose the removal of the first and second mask films.

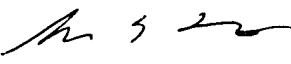
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It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tsuji by removing the first and second mask films during the semiconductor manufacturing process in anticipation of an expected result.

In regard to claims 4, 7 and 9, these claims differ from Tsuji by specifying various materials for the insulating film. It would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Tsuji by using different materials to form the insulating film in anticipation of an expected result, since the use of such different materials is well known in the art of semiconductor manufacturing.

In regard to claims 5-6, 8 and 10-11, these claims differ from Tsuji by specifying that the holes are in contact with the lower electrodes in the capacitors of the memory cells, and by disclosing that capacitors are set for storing information. It is the Examiner's position that these are conditions well known in the semiconductor art, and that it would have been obvious to modify Tsuji by disclosing the above-mentioned information.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Vanessa Perez-Ramos whose telephone number is (703) 306-5510.



**BENJAMIN UTECH
PRIMARY EXAMINER
GROUP 1100**

VPR

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May 7, 1999